

REMARKS

In the Office Action, the Examiner rejection claims 1, 5, and 21-23 under 35 U.S.C. § 112, paragraph 1 as containing subject matter not described in the specification. The Examiner rejected claims 1, 5, and 21 under 35 U.S.C. § 102(b) as anticipated by Japanese KOKAI publication number 3-13576 ("*Isaka*"). And the Examiner rejected claims 22 and 23 under 35 U.S.C. § 103(a) as unpatentable over *Isaka*. Applicants respectfully traverse these rejections.

Formal Drawings

Applicants respectfully request review of the formal drawings submitted as part of the filed application April 27, 2000. The Office Action dated January 16, 2002 (Paper No. 6), included an attachment indicating the drawings have not been reviewed because, "The drawings submitted with this application were declared informal by the applicant." However, the record contains no such declaration. The cover sheet filed with the original application clearly indicates under item number 3: "Drawings - 5 sheets of formal drawings containing 12 figures." *To date, there is no indication that the drawings have been reviewed by the Examiner.* Review of the formal drawings is respectfully requested.

Amendment

Applicants have canceled claim 23 without prejudice or disclaimer of the subject matter contained therein. In addition, Applicants have amended claims 1, 21, and 22 to more particularly claim the invention. Changes are indicated in the attached Appendix with deletions indicated by square brackets and insertions indicated by underlining.

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Applicants have also added new claims 24 and 25 to more fully cover aspects of their invention. No new matter has been added.

Rejection under § 112 ¶ 2

In the Office Action, the Examiner rejected claims 1, 5, and 21–22 under § 112, paragraph 1 as containing subject matter not described in the specification. Specifically, the Examiner stated, “The specification is completely silent for reciting the limitation ‘indium monoiodide (InI)’ as recited in claims 1 and 21–23.” (Paper No. 17, at 2.) Applicants respectfully traverse the rejection of these claims.

Applicants have amended claims 1, 21, and 22 to refer to indium iodide (InI), which is clearly described in the specification. This amendment is merely a change in nomenclature and does not affect the claim scope. Withdrawal of the rejection is respectfully requested.

Rejection under § 102(b)

In the Office Action, the Examiner rejected claims 1, 5, and 21 under § 102(b) as anticipated by *Isaka*. Applicants respectfully traverse the rejection of these claims.

Isaka discloses an apparatus and method for ion irradiation. The apparatus and method irradiate granular indium triiodide (InI₃), preferably in the temperature range of 300–500 °C, to decompose the InI₃ by arc discharge and form indium ions. (*Isaka*, abstract; translation excerpt provided with Information Disclosure Statement dated June 7, 2002.)

Isaka fails to disclose, however, a combination of elements including, “heating an ion source material composed of indium iodide (InI) at a temperature of not lower than 275 °C and not higher than 380 °C to produce an ion beam current of not less than 2μA

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effective to generate vapor of said indium iodide (InI)," as recited in claim 1. Absent a disclosure of each element of claim 1, *Isaka* cannot anticipate the claim. Therefore, claim 1 is allowable over *Isaka*.

Applicants further submit that claims 5 and 21 are also allowable over the *Isaka* at least because of their dependence from claim 1. Withdrawal of the rejection of claims 1, 5, and 21 is respectfully requested.

In addition, new claim 24 is likewise allowable at least because of its dependence from allowable claim 1.

Rejection under § 103(a)

In the Office Action, the Examiner rejected claim 22 under § 103(a) as unpatentable over *Isaka*. Applicants respectfully traverse this rejection.

As noted above, *Isaka* discloses an apparatus and method for ion irradiation. The apparatus and method include diffusing gasified indium triiodide into a discharge chamber 5 from a horizontal cylinder 1. (*Isaka*, abstract; Figure.) Discharge chamber 5 includes a filament 51 bisecting the discharge chamber 5 and an inert gas inlet 54 on a wall adjacent to injection port 55. (*Isaka*, abstract; Figure.) A voltage is impressed between filament 51 and cathode 22 to generate an arc discharge. (*Isaka*, abstract; Figure.)

By contrast, claim 22 recites, "heating an ion source material composed of indium iodide (InI) and *filled in a longitudinal oven* provided outside of an arc chamber, to generate vapor of said indium iodide (InI)," which is clearly not disclosed or suggested by *Isaka*, which includes, *inter alia*, a horizontal cylinder.

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Isaka also fails to disclose or suggest, "wherein a filament is provided on one side surface of said arc chamber, and a reflecting counter electrode is provided on a second side surface of said arc chamber opposite to said one side surface to form an arc in conjunction with said filament," as recited in claim 22. The Examiner does not assert otherwise. Acknowledging that *Isaka* fails to disclose that claim element, the Examiner states, "*Isaka* (3-13576) discloses all the features . . . except the chamber having a filament provided on one side surface and reflector counter electrode provided on a second side surface opposite to the one side surface as recited in claim 22." (Paper No. 17, at 4.) But without support, the Examiner alleges that *Isaka's* failing is "considered to be an obvious variation in design, since the chamber having the filament provided on one side surface and a reflector counter electrode provided on a second side surface opposite to the one side surface is well known in the art and in the ion source." (Paper No. 17, at 4.)

Applicants respectfully disagree. There is no suggestion or motivation to modify *Isaka* to compensate for the acknowledged deficiencies nor is there any indication that were *Isaka* modified as proposed by the Examiner, *Isaka* would work for its intended purpose. Applicants request that should the Examiner maintain this rejection, the Examiner provide supporting evidence in the next Office communication. (MPEP § 2144.03 (8th ed. 2001).)

Moreover, *Isaka* also fails to disclose or suggest, "a gas inlet for said vapor is provided on one face of the arc chamber, said one face being between said one and said second side surfaces and perpendicular thereto, and is configured to introduce said vapor generated in said oven into said chamber almost perpendicularly to said arc," as

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recited in claim 22. This is clearly different from *Isaka*, which discloses, at best, diffusing gasified indium triiodide into discharge chamber 5, which includes a filament 51 bisecting the discharge chamber 5 and an inert gas inlet 54 on a wall adjacent to injection port 55.

Because *Isaka* fails to disclose or suggest a combination of elements as recited in claim 22, claim 22 is allowable over *Isaka*. Withdrawal of the rejection of claim 22 is respectfully requested.

In addition, new claim 25 is likewise allowable at least because of its dependence from allowable claim 22.

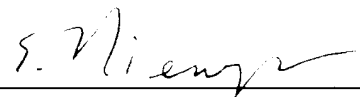
In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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APPENDIX

Claims

1. (Thrice Amended) A method of generating ions, comprising:

heating an ion source material composed of indium [monoiodide] iodide (InI) at a temperature of not lower than [250] 275 °C and not higher than 380 °C to produce [a desired] an ion beam current of not less than 2μA effective to generate vapor of said indium [monoiodide] iodide (InI); and

generating indium (In) ions by discharging said vapor.

21. (Amended) The method according to claim 1, wherein said heating an ion source material comprises heating said indium [monoiodide] iodide (InI) at a temperature of not lower than 300 °C and not higher than 380 °C [to produce said desired ion beam current effective] to generate said vapor of said indium [monoiodide] iodide (InI).

22. (Amended) A method of generating ions, comprising:

heating an ion source material composed of indium [monoiodide] iodide (InI), provided in a longitudinal oven provided outside of an arc chamber, to generate vapor of said indium [monoiodide] iodide (InI); and

generating indium (In) ions by discharging said vapor in [an] said arc chamber, wherein a filament is provided on one side surface of said arc chamber, and a reflecting counter electrode is provided on a second side surface of said arc chamber opposite to said one side surface to form an arc in conjunction with said filament, and a gas inlet for said vapor is provided on one face of the arc chamber, said one face being between said one and said second side surfaces and perpendicular thereto, and is configured to

introduce said vapor generated in said oven into said chamber almost perpendicularly to
said arc.

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